Office of Technical Assistance
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

Toxics Use Reduction Case Study

SOLVENT USE REDUCTION AT KILMARTIN TOOL COMPANY

SUMMARY

The Kilmartin Tool Company devised a very simply yet highly effective method for minimizing CFC losses. The company decided to seal its CFC in air-tight containers between uses, thus preventing evaporative losses to the atmosphere. This change permitted Kilmartin to cut its use of ozone-depleting CFCs by more than 80%, while saving approximately $5,000 per year in CFC purchase costs.

BACKGROUND

The 110-employee Kilmartin Tool Company of southeastern Massachusetts is the largest manufacturer of coins and tokens in the United States. Roughly six times each year, Kilmartin cleans its coining dies in a chlorofluorocarbon (CFC) degreasing solution.

Each time the degreasing process is performed, the tank is heated in order to boil the CFC solution. The liquid vaporizes, rises in the tank and is condensed by cooling coils that surround the tank walls. The coining dies are cleaned by dipping them into the vapor inside the tank. When this is done, the CFC solution condenses on the dies, pulls the soils and grease from them, and drips back into the tank.

Before Kilmartin began to investigate opportunities for Toxics Use Reduction, the firm attempted to minimize CFC evaporation by turning off the tank heater and covering the tank with a lid after each degreasing job. Kilmartin's cleaning operation was using approximately 300 gallons of CFC each year. Due to the rising costs of CFCs and their adverse impact on stratospheric ozone, the company sought ways to reduce its CFC use.

TOXICS USE REDUCTION MODIFICATIONS

Kilmartin knew that most of the CFC it used was being lost to evaporation. Given this, Kilmartin's process engineer designed a very simple solution. The company decided to seal its CFC in air-tight containers between uses. Since the degreasing tank could not be sealed easily, Kilmartin chose to pump the CFC from the tank into a 55-gallon drum (See Figure 1). Once sealed, the drums prevented all further evaporative loss to the atmosphere.

RESULTS

Reductions Achieved: Kilmartin's CFC usage dropped from 300 gallons per year to 50 gallons per year -- a reduction of more than 80 percent.

Economics: Kilmartin's monetary savings were equally dramatic; the firm's CFC purchase costs dropped from $6,000 to $1,000 per year.

Figure 1: *Kilmartin's Modified Degreasing Process:*